

REMARKS

Claims 1 to 23 and 25 remain pending, with Claim 1 being independent.

Claims 1 to 20 and 25 remain in active prosecution, while Claims 21 and 23 have been withdrawn from consideration.

All pending claims in active prosecution have been rejected.

Claim 1 has been amended to further emphasize the distinctions between the present invention and the documents cited in the Action. Claim 25 has been amended to recite process steps as required by the Examiner and to align the language of the claim with that of Claim 1, as amended.

Support for the amendments to the claims is abundant throughout the specification.

Applicant turns now to the substance of the Action.

Formal Rejections:

Claim 7 stands rejected under 35 U.S.C. § 112, first paragraph.

Claim 25 stands rejected under 35 U.S.C. § 112, second paragraph, and 35 U.S.C. § 101.

Applicant's amendments to Claim 7 and 25 address and overcome the Sections 112, first and second paragraphs, and 101

rejections. Reconsideration and withdrawal thereof are thus requested.

Substantive Rejections:

Claims 1-5, 10-14 and 19 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent Application Publication No. 2003/0139487 (Montgomery).

Claims 1-14, 19, 20 and 25 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over PCT Publication No. 03/46042 (Thommes), U.S. Patent No. 4,343,885 (Reardon) and in view of Montgomery.

Claims 15-18 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Reardon and Montgomery in view of U.S. Patent No. 6,309,797 (Grinevich).

Applicant traverses these rejections.

For the Examiner's benefit, Applicant provides below a summary of the substance of the invention.

The present invention is directed to encapsulant compositions suitable for encapsulating electronic components such as an integrated circuit module. Typical applications include use as smart card encapsulants. There is great difficulty in balancing the required opacity with the ability to cure with speed. In the electronics industry, speed of

processing of electronic component is of paramount importance. So too, is the reliability with which the desired characteristics are achieved in the curable composition. Lower reliability leads to higher failure rates and inefficient processing.

It is desirable to use uv curable compositions which can be cured at high speed. To date, however, there has been a difficulty in achieving sufficient thickness of cure of such a composition, while maintaining the curable composition sufficiently opaque so that the encapsulated item is not visible. It has further been acknowledged by the present inventor that even the best of the prior art systems (such as employing carbon black) has not succeeded in providing a composition with a sufficient level of cure through volume to allow it to be used in a production process with a wide margin of tolerance. Known systems which have been employed previously have not had sufficient cure through volume to allow the desired opacity to be achieved, particularly when the processing steps are not running at an optimal level.

There is thus an inherent trade-off between the uv curability of the composition and the amount of opacifying agent employed. All known compositions employed to date for the purpose of solving the problem to which the present invention is

directed have struggled with this balance, and employed a relatively high loading of opacifying material thus compromising cure characteristics. In general these two requirements were so finely balanced that relatively small changes to the amount of the opacifying agent, the amount of a radiation exposure, the time of exposure etc. could lead to insufficient cure through volume.

Until the present invention, there was no commercially available composition which could be applied in high processing environments and achieve the reliability in performance demonstrated by the compositions of the present invention.

It is noteworthy that the documents cited by the Examiner come from diverse technological fields, which are each unrelated to the technical field of the present invention. In fact, the only common thread among the cited documents is that they involves uv curable compositions, which change color. Opacity is not mentioned.

Applicant discusses the cited documents of record in turn below.

Montgomery

Montgomery relates to methods for repair of optical components such as optical fibres. Montgomery makes clear that

the composition is used in isolated instances where splicing together of fibers is desired, where the splicing occurs to create a link between a new piece of fiber cable and an existing one. Clearly, Montgomery's compositions are not therefore contemplated for use in high-speed processing environments such as in the electronics industry.

Further, Montgomery mentions coloring and changes in color imparted to the compositions used to coat spliced together fibers. In Montgomery, color is used merely to "impart the desired color to the finished fiber".

There is no teaching whatsoever by Montgomery of any system to achieve sufficient cure through volume on exposure to uv light to allow a sufficient thickness of composition to cure as encapsulant so that the encapsulant is opaque and the part is not visible through the encapsulant.

The passage that the Examiner has relied upon (page 8, paragraphs 80 and 81) refers only to coloration, not to opacity.

Montgomery neither motivates nor teaches the skilled person on how to prepare a composition which is suitable for use as an encapsulant, as set out in Claim 1 of the subject application.

International Patent Publication No. WO 03/04602 (Thommes)

The Examiner appears to be of the view that Thommes discloses a composition including an adhesive-promoting component within a curable composition. The Examiner relies in this respect on the disclosure at page 16 thereof.

In fact, however, Thommes' silane coupling agents are for surface treating inorganic fillers. The silane-treated filler may be included in the compositions described by Thommes. However, it is clear that the silane referred to in Thommes is not an adhesion-promoting component, as it is in the inventive photocurable compositions .

Thommes describes only a utility for the compositions disclosed therein in relation to the production of three-dimensional items. There is no disclosure whatsoever in relation to utilizing the compositions as encapsulants.

Accordingly, it is clear that Thommes has been cited based entirely on hindsight as regards the individual components of the composition of the present invention. This is clear given that the disclosure does not relate to the same technical field and particularly clear in view of the reliance on an out-of-context citation of the silane component.

Reardon

Reardon, like the two previous cited documents, relates to a composition which changes color. In particular, as identified in column 1, lines 37 et seq., it is desired that the composition change color so that the person running the photoresist process can determine that the composition has been exposed to sufficient uv light. Thus, the requirement is only for a sufficient color change to allow determination of sufficient exposure. There is no requirement for opacity in the composition.

Reardon resides in a different field of endeavor from all of other documents cited against the claims of the subject application. More specifically, Reardon relates to the field of producing dry, photoresist films, and in its description provides a shopping list of additional components which may be employed. As the Examiner has acknowledged, the adhesion promoting component -- briefly mentioned in Reardon as a possible additive -- has not been exemplified and it is not used. Further, the Examiner relies again on Montgomery for Montgomery's disclosure to treat a filler with silane. For that reason, and given that the documents are from diverse technical fields, it is clear that the Examiner has made an improper combination of documents to try to arrive at the present

invention, with the combination having come about solely through the application of hindsight.

Even if such a combination were permissible, neither of the documents teach a composition according to the present invention as defined in Claim 1 which has sufficient cure through volume on exposure to uv light to allow a sufficient thickness of composition to cure as encapsulant so that the encapsulant is opaque and the part is not visible through the encapsulant. There is therefore no motivation in this document or in its combination with any other documents cited to arrive at the present invention.

Grinevich

Grinevich simply provides colorable polymerizable compositions. There is no mention of an adhesion-promoting agent or of the particular end-use contemplated by the present invention. Grinevich discloses a color change mechanism, but fails to deal at all with any of the technical problems addressed by the current invention.

This document is further cited as adding teaching to a combined disclosure which was created by selection of the Examiner from Reardon and Thommes above. It is respectfully submitted that the combination of these latter two documents has

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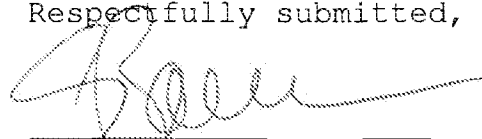
already been shown to be based on a misinterpretation. Adding Grinevich to such a combination does not lead or even point to the present invention.

CONCLUSION

Applicants respectfully submit that the claims as presented herein are patentably distinct from the documents of record. Thus, favorable reconsideration and withdrawal of the rejections and passage to issue of the subject application are respectfully requested.

Applicant's undersigned attorney may be reached by telephone at (860) 571-5001, by email at steve.bauman@us.henkel.com or by facsimile at (860) 571-5028. All correspondence should be directed to the address given below.

Respectfully submitted,



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